

REMARKS

As an initial matter, Applicant reaffirms the election to prosecute the Group I method claims, i.e. claims 1-19. Thus, claims 1-19 remain pending in the present application.

In the Office Action, claims 1-4, 8-9, 12-13, and 17 are rejected under 35 U.S.C. § 102(e) as being anticipated by admitted prior art. The Examiner's rejection is respectfully traversed.

With regard to independent claim 1, Applicant describes and claims forming a layer comprised of a refractory metal, determining a thickness of said layer of refractory metal, and converting a portion of said layer of refractory metal to a metal silicide. Applicant further describes and claims determining a duration of an etching process to remove unreacted portions of said refractory metal layer based upon said determined thickness of said refractory metal layer and performing said etching process for said determined duration to remove said unreacted portions of said refractory metal layer. With regard to independent claim 12, Applicant additionally describes and claims depositing the layer comprised of the refractory metal above a plurality of source/drain regions and a gate electrode of a transistor, as well as converting the portion of said layer of refractory metal to the metal silicide by performing at least one anneal process.

The admitted prior art describes forming metal silicide regions on a gate electrode and source/drain regions by depositing a layer of refractory material above the gate electrode and the source/drain regions. Unreacted portions of the refractory material are removed, typically using a dilute acid bath. See Patent Application, pg. 3, ll.8-25. In contrast to the present invention, the duration of the described chemical removal process is based upon the greatest thickness that may be anticipated by the process. See Patent Application, pg. 4, ll. 7-10. Accordingly, the Applicant's admitted prior art is completely silent with regard to determining a thickness of said

layer of refractory metal, determining a duration of an etching process to remove unreacted portions of said refractory metal layer **based upon** said determined thickness of said refractory metal layer and performing said etching process for said determined duration to remove said unreacted portions of said refractory metal layer.

The methodologies set forth in the pending claims are fundamentally different from the prior art methodologies described in the background section of the application. For example, in situations where the layer of refractory metal is less than the maximum thickness anticipated by the design process, the methodologies set forth in the background section of the application, *i.e.* the admitted prior art, results in subjecting the device to the etching process for a duration longer than would otherwise be required to remove the unreacted portions of the layer of refractory metal. In turn, this over-etching needlessly consumes some of the thickness of the metal silicide regions, which undesirably increases the sheet resistance of the metal silicide regions.

At no point does the admitted prior art disclose or suggest determining a duration of an etching process to be performed to remove the unreacted portions of said refractory metal layer **based upon** the determined thickness of said refractory metal layer. In fact, it is believed that the duration of the prior art etching processes for removing the unreacted refractory metal layer were determined based upon either an assumption as to the thickness of the resulting metal silicide layer and the amount of unreacted material to be removed, or established for a worst-case scenario, wherein the duration was established for the largest amount of material to be removed that could reasonably be anticipated. Thus, Applicant respectfully submits that claims 1, 12, and all claims depending therefrom, are not anticipated by Applicant's admitted prior art.

In the Office Action, claims 5-7, 10-11, 14-16, and 18-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over admitted prior art. The Examiner's rejections are respectfully traversed.

As the Examiner well knows, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. That is, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. Third, there must be a reasonable expectation of success.


Applying these legal standards to the present case, it is respectfully submitted that the pending claims are not obvious in view of the admitted prior art, despite the Examiner's conclusory statements to the contrary. A recent Federal Circuit case emphasizes that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding

of obviousness. *Id.* at 1434-35. Moreover, Applicant respectfully submits that the Applicant's admitted prior art does not teach or suggest all the limitations of the present invention, does not provide any suggestion or motivation to modify the prior art to arrive at the present invention, and does not provide any expectation of success. Any attempts to assert otherwise must necessarily be based upon an improper use of hindsight using Applicant's invention as a roadmap. Thus, Applicant respectfully requests withdrawal of the Examiner's obviousness rejection.

For at least the aforementioned reasons, it is respectfully submitted that all claims are in condition for allowance. The Examiner is requested to call the undersigned at (713) 934-4052 to discuss any additional steps that the Examiner may consider necessary for placing the application in condition for allowance.

Respectfully submitted,

Date: September 26, 2002



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